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TELEPHONE SERVICE, SERVICE OPERATION AND  
HUMAN FACTORS

International operation – Maritime mobile service and  
public land mobile service

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**Maritime communications – Ship station identity**

ITU-T Recommendation E.217

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ITU-T E-SERIES RECOMMENDATIONS

OVERALL NETWORK OPERATION, TELEPHONE SERVICE, SERVICE OPERATION AND HUMAN FACTORS

INTERNATIONAL OPERATION	
Definitions	E.100–E.103
General provisions concerning Administrations	E.104–E.119
General provisions concerning users	E.120–E.139
Operation of international telephone services	E.140–E.159
Numbering plan of the international telephone service	E.160–E.169
International routing plan	E.170–E.179
Tones in national signalling systems	E.180–E.189
Numbering plan of the international telephone service	E.190–E.199
<b>Maritime mobile service and public land mobile service</b>	<b>E.200–E.229</b>
OPERATIONAL PROVISIONS RELATING TO CHARGING AND ACCOUNTING IN THE INTERNATIONAL TELEPHONE SERVICE	
Charging in the international telephone service	E.230–E.249
Measuring and recording call durations for accounting purposes	E.260–E.269
UTILIZATION OF THE INTERNATIONAL TELEPHONE NETWORK FOR NON-TELEPHONY APPLICATIONS	
General	E.300–E.319
Phototelegraphy	E.320–E.329
ISDN PROVISIONS CONCERNING USERS	E.330–E.349
INTERNATIONAL ROUTING PLAN	E.350–E.399
NETWORK MANAGEMENT	
International service statistics	E.400–E.409
International network management	E.410–E.419
Checking the quality of the international telephone service	E.420–E.489
TRAFFIC ENGINEERING	
Measurement and recording of traffic	E.490–E.505
Forecasting of traffic	E.506–E.509
Determination of the number of circuits in manual operation	E.510–E.519
Determination of the number of circuits in automatic and semi-automatic operation	E.520–E.539
Grade of service	E.540–E.599
Definitions	E.600–E.649
Traffic engineering for IP-networks	E.650–E.699
ISDN traffic engineering	E.700–E.749
Mobile network traffic engineering	E.750–E.799
QUALITY OF TELECOMMUNICATION SERVICES: CONCEPTS, MODELS, OBJECTIVES AND DEPENDABILITY PLANNING	
Terms and definitions related to the quality of telecommunication services	E.800–E.809
Models for telecommunication services	E.810–E.844
Objectives for quality of service and related concepts of telecommunication services	E.845–E.859
Use of quality of service objectives for planning of telecommunication networks	E.860–E.879
Field data collection and evaluation on the performance of equipment, networks and services	E.880–E.899

*For further details, please refer to the list of ITU-T Recommendations.*

## **ITU-T Recommendation E.217**

### **Maritime communications – Ship station identity**

#### **Summary**

For the purposes of International Public Correspondence Telecommunication, the ship station identity is now only relevant for those existing systems that have the ship station identity embedded in the numbering scheme as illustrated in Annexes A and B. For future systems that will not embed the ship station identity in their numbering scheme the ship station identity ceases to have any relevance for public correspondence telecommunication purposes.

#### **Source**

ITU-T Recommendation E.217 was prepared by ITU-T Study Group 2 (2001-2004) and approved under the WTSA Resolution 1 procedure on 16 May 2002.

## FOREWORD

The International Telecommunication Union (ITU) is the United Nations specialized agency in the field of telecommunications. The ITU Telecommunication Standardization Sector (ITU-T) is a permanent organ of ITU. ITU-T is responsible for studying technical, operating and tariff questions and issuing Recommendations on them with a view to standardizing telecommunications on a worldwide basis.

The World Telecommunication Standardization Assembly (WTSA), which meets every four years, establishes the topics for study by the ITU-T study groups which, in turn, produce Recommendations on these topics.

The approval of ITU-T Recommendations is covered by the procedure laid down in WTSA Resolution 1.

In some areas of information technology which fall within ITU-T's purview, the necessary standards are prepared on a collaborative basis with ISO and IEC.

## NOTE

In this Recommendation, the expression "Administration" is used for conciseness to indicate both a telecommunication administration and a recognized operating agency.

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## CONTENTS

	<b>Page</b>
1 Scope .....	1
2 References.....	1
3 Ship station identity .....	1
4 Assignment of Maritime Identification Digits (MID) .....	1
5 The use of the ship station identity .....	1
6 The Global Maritime Distress and Safety System (GMDSS) .....	2
Annex A – Telephone/ISDN numbering plan for the mobile-satellite services of Inmarsat...	2
A.1 Introduction .....	2
A.1.1 Purpose .....	2
A.1.2 Terminology .....	2
A.1.3 Basic considerations .....	3
A.2 Format of Inmarsat mobile international number.....	3
A.3 E.164 codes for Inmarsat applications.....	4
A.4 Format of Inmarsat mobile number .....	4
A.4.1 General format.....	4
A.4.2 Formats for Inmarsat-A system .....	5
A.4.3 Formats for Inmarsat-B system .....	6
A.4.4 Format for Inmarsat-C system.....	7
A.4.5 Format for Inmarsat Aeronautical system .....	8
A.4.6 Formats for Inmarsat-M system .....	9
A.4.7 Formats for Inmarsat-mini-M system.....	10
A.4.8 Future Inmarsat systems .....	10
A.5 Digit analysis .....	10
A.6 Presentation of Inmarsat mobile numbers in directories .....	11
A.6.1 General .....	11
Attachment I to Annex A – Use of ship station identification for maritime applications of systems operated by Inmarsat (Normative) .....	11
A.I.1 General .....	11
A.I.2 Constraints on ship station identification and numbering .....	12
A.I.3 Application of ship station identity .....	12
Attachment II to Annex A – Group call numbering scheme for Inmarsat systems (Normative).....	14
A.II.1 Categories for group call services .....	14
A.II.2 Group call formats .....	14

Attachment III to Annex A – Structure of the on-board identification digits in the Inmarsat numbering plan (Normative) .....	15
A.III.1 Introduction .....	15
A.III.2 Proposed structure .....	15
A.III.3 Allocation .....	15
Annex B – Numbering plan for access to the mobile-satellite services of Inmarsat from the international telex service .....	16
B.1 Introduction .....	16
B.1.1 Purpose .....	16
B.1.2 Terminology .....	17
B.1.3 Basic considerations .....	17
B.2 Format of Inmarsat mobile international number.....	18
B.3 Telex destination codes for Inmarsat.....	18
B.4 Format of Inmarsat mobile number .....	18
B.4.1 General format.....	18
B.4.2 Formats of the Inmarsat mobile number for Inmarsat-A system .....	19
B.4.3 Formats of the Inmarsat mobile number for Inmarsat-B system.....	19
B.4.4 Format of the Inmarsat mobile number for Inmarsat-C system .....	20
B.4.5 Format of the Inmarsat mobile number for Inmarsat aeronautical system.....	20
B.4.6 Future Inmarsat systems .....	20
B.5 Digit analysis .....	20
B.6 Presentation of Inmarsat mobile numbers in directories .....	21
B.6.1 General .....	21
Attachment I to Annex B – Use of ship station identification for maritime applications of systems operated by Inmarsat (Normative) .....	21
B.I.1 General .....	21
B.I.2 Constraints on ship station identification and numbering .....	22
B.I.3 Applications of ship station identity .....	22
Attachment II to Annex B – Group call numbering scheme for the Inmarsat system (Normative).....	23
B.II.1 Categories for group call services .....	23
B.II.2 Group call formats.....	24
Reference .....	24

## **Introduction**

The advent a mobile satellite communication system designed to serve the maritime community, made it possible for ships to participate in the automatic international telex service and the automatic international telephone service. This gave rise the need for a unique international identity for ship stations.

In anticipation of other communications methods becoming available to connect the maritime community with public telecommunication networks worldwide, it was decided to standardise a form identification for ships for telecommunications purposes usable over both terrestrial radio and satellite systems. It was also recognised that unique station identities would be an integral component of the automated distress and safety communication functions underpinning the development of the Global Maritime Distress and Safety System (GMDSS). The Ship Station Identity was therefore established as part of the maritime mobile service identity concept, which includes other elements of maritime communications (see the relevant Radio Regulations and ITU-R Recommendations). The intention was that there would always be a direct and obvious link between ship station identities and international telecommunications numbers in order to facilitate the control of distress communications.

It is only the satellite systems that have been able to resolve the various billing, routing, charging and signalling aspects in a manner compatible with the networks serving the rest of the communications environment. It has not proved feasible to establish single-stage connection procedures to ships over terrestrial radio paths that can satisfy all these aspects. Moreover, mobile satellite systems are now designed to offer service to a number of different sectors, not just the maritime sector, and as such can not support embedding the ship station identity in the international telecommunications number of the ship. Embedding the ship station identity in the international telecommunication number is considered unreasonable and contrary to the principles of ITU-T Rec. E.190 with regard to the efficient and effective use of numbering resources

For the purposes of International Public Correspondence Telecommunication, the ship station identity is now only relevant for those existing systems that have the ship station identity embedded in the numbering scheme. For future systems that will not embed the ship station identity in their numbering scheme the ship station identity ceases to have any relevance for public correspondence telecommunication purposes. For illustrative purposes the use of the ship station identity in the numbering scheme associated with the International Telephone Service and the International Telex Service provided by means of the Inmarsat maritime mobile satellite system is shown in Annexes A and B

For ships participating in the GMDSS (Global Maritime Distress and Safety System), it remains essential to be able to establish a link between the ships station identity and any telecommunications number associated with that ship. If the link cannot be readily ascertained by visual inspection of the number it must be available through reference to a suitable database.



# ITU-T Recommendation E.217

## Maritime communications – Ship station identity

### 1 Scope

This Recommendation describes methods for the use of ship station identities in maritime telecommunications and the relationship with international public correspondence telecommunications.

### 2 References

**2.1** The Manual for the Maritime Mobile and Maritime Mobile-Satellite Services, published by the Radiocommunication Bureau, makes reference to the Recommendations of the ITU-T and ITU-R concerned with the creation and use of maritime mobile service identities and international telecommunication numbers for ships. Attention is also drawn to relevant extracts from the ITU Constitution and Convention and to the Radio Regulations. (see for example, ITU-R Rec. M.585 and Article 19 of the Radio Regulations).

### 3 Ship station identity

**3.1** The ship station identity is established as nine digits  $M_1I_2D_3X_4X_5X_6X_7X_8X_9$

**3.2** The initial three digits denote the administration responsible for the ship and are known as the Maritime Identification Digits (MID). The value of the first digit has the range 2 to 7. Of the remaining values 0 has been reserved, 1 is reserved for expansion of the MID range, 8 and 9 are used for other purposes but with a view to them becoming available for future expansion.

### 4 Assignment of Maritime Identification Digits (MID)

**4.1** Each MID represents a discrete assignable capacity of ship station identities. MID(s) were originally assigned to individual countries according to a plan that related assignable capacity of ship station identities to ship population. The Radio Regulations make provision for the allocation of an additional MID for a specific Administration when necessary.

### 5 The use of the ship station identity

**5.1** The 12-digit E.164 number format for the international telephone service has to accommodate various system identification and operational functions. When used in conjunction with existing GMDSS systems only 6 of the 12 digits are available for identifying particular ships. If there is a requirement for a ship station identity of nine digits to be represented in the E.164 number then this must be accomplished within 6 digits. This was achieved by using the first 6 digits of the ship station identity and giving digits seven, eight and nine the value of zero. This combination is known as ship station identity with three trailing zeros and was applied to both terrestrial and satellite systems.

**5.2** Annex A illustrates the way a ship station identity is used in an international telephone number for the maritime mobile satellite service.

## **6 The Global Maritime Distress and Safety System (GMDSS)**

**6.1** The ship station identity is used as the unique reference for ships that participate in GMDSS. A Rescue Coordination Centre (RCC) is able to use the ship station identity to ascertain information such as the ship's name, call sign, flag state (nationality) and emergency contact details. This is needed both for ships in distress and those that may be able to assist. If the ship's telecommunications number does not have the ship station identity embedded in it, then the system operator should provide this information to the RCC by means of access to a database. Such access should be available on a 24 hour-per-day, 7 days-per-week basis. In systems that have distress priority, this information should be automatically forwarded to an RCC.

**6.2** The initial query would be based on the E.164 telecommunication number and this should give access to information such as but not limited to, the ship station identity, the ship's name, the ship's call sign, flag state, and emergency contact details. In the maritime environment, an E.164 telecommunication number is specific to one maritime mobile-satellite system. The individual system can be identified from one of its E.164 telecommunication numbers and the appropriate database can be interrogated.

### **Annex A<sup>1</sup>**

#### **Telephone/ISDN numbering plan for the mobile-satellite services of Inmarsat**

##### **A.1 Introduction**

###### **A.1.1 Purpose**

The purpose of this annex is to specify a telephone/ISDN numbering plan for mobile earth stations in systems operated by Inmarsat. Such systems may include maritime, land-based and aeronautical satellite systems. In the future, the range of mobile satellite systems may also include satellite systems for other applications.

###### **A.1.2 Terminology**

The telex numbering plan for Inmarsat is contained in ITU-T Rec. F.125. This Recommendation and ITU-T Rec. F.125 are designed to be as similar as possible.

This Recommendation defines the following terms.

**A.1.2.1 ship station identity:** As defined in the Radio Regulations, Appendix 43. See also ITU-T Rec. E.210.

**A.1.2.2 Inmarsat mobile international number:** The number following the international prefix which identifies terminal equipment connected to an Inmarsat mobile earth station for access from a public network.

**A.1.2.3 Inmarsat mobile number:** The part of the Inmarsat mobile international number which follows E.164 codes allocated to Inmarsat.

**A.1.2.4 other definitions:** For definition of terms such as maritime mobile-satellite service, aeronautical mobile-satellite service, ship earth station, etc., see the Radio Regulations.

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<sup>1</sup> This annex reproduces the content of former ITU-T Rec. E.215 (1997).

**A.1.2.5 on-board identification digits:** These digits are the part of the mobile earth station number used for identifying:

- a specific terminal equipment on board;
- a specific mobile earth station.

### **A.1.3 Basic considerations**

The considerations which form the basis of the numbering plan are:

**A.1.3.1** that it shall be possible to identify an Inmarsat mobile earth station uniquely from the Inmarsat mobile number;

**A.1.3.2** that the Inmarsat mobile number should have a format where the same number could be used for access from all types of public networks;

**A.1.3.3** that the number of three-digit E.164 codes required for supporting future Inmarsat requirements should be as few as possible;

**A.1.3.4** that different routings could be used for calls to mobile earth stations designed for different Inmarsat systems;

**A.1.3.5** that Administrations and Inmarsat could apply different charging and accounting rates to different Inmarsat systems;

**A.1.3.6** that the numbering plan should provide capacity for on-board identification or direct access to a specific terminal equipment connected to a mobile earth station, e.g. on board a ship;

**A.1.3.7** that the numbering plan should support access to multichannel mobile earth stations;

**A.1.3.8** that the new mobile earth station numbering plan should incorporate numbering plan(s) already in use for the Inmarsat-A system;

**A.1.3.9** that the length of the Inmarsat mobile international number should comply with ITU-T Rec. E.164 and will be limited to 12 digits until 1st January 1997 (see also ITU-T Rec. E.165 and associated ITU-T Rec. E.162);

**A.1.3.10** that, for maritime satellite applications, the ship earth station numbering plan should support access to several ship earth stations on the same ship within one ship station identity;

**A.1.3.11** that the radio regulations make provision for the allocation of additional MIDs for a specific country when necessary;

**A.1.3.12** that Inmarsat will assign and administer the Land Identification Digits (L<sub>2</sub>I<sub>3</sub>D<sub>4</sub>) which are used to identify the country of registry of land-based mobile earth stations.

## **A.2 Format of Inmarsat mobile international number**

The general format of the Inmarsat mobile international number is:

$$\text{CCC } T_1 (T_2) X_1 X_2 \dots X_k$$

where CCC is a three-digit E.164 code allocated to Inmarsat as shown in Table A.1, and T<sub>1</sub>(T<sub>2</sub>) X<sub>1</sub> ... X<sub>k</sub> is the Inmarsat mobile number. The number of T digits will vary between one or two, according to the particular Inmarsat system involved as shown in Table A.2. The format of the mobile number is given in clause A.4.

### A.3 E.164 codes for Inmarsat applications

E.164 codes for Inmarsat applications are given in Table A.1.

**Table A.1/E.217 – Telephone/ISDN E.164 codes for Inmarsat applications**

Country code	Application
870	Single Network Access Code (Notes 1 and 2)
871	Atlantic-East Ocean Region, Inmarsat
872	Pacific Ocean Region, Inmarsat
873	Indian Ocean Region, Inmarsat
874	Atlantic-West Ocean Region, Inmarsat

NOTE 1 – E.164 code 870 has been allocated to enable the originator of a call to an Inmarsat mobile earth station to dial one E.164 code for worldwide access.

NOTE 2 – The code 870 has been allocated by the ITU-T on the understanding that by 1 July 2015 at the latest, Inmarsat systems and associated mobile earth stations will be accessed from the fixed network using only the single E.164 code 870. When this objective is achieved, the E.164 codes 871-874 will be returned to the ITU-T.

### A.4 Format of Inmarsat mobile number

#### A.4.1 General format

The general format of the Inmarsat mobile number is:

$$T_1(T_2) X_1 X_2 \dots X_k$$

where a single or double digit T is used for discrimination between different Inmarsat systems.

The formats used for the various Inmarsat systems are defined below. The values of the T digits are summarized in Table A.2.

The T digits represent a limited resource and a new T digit(s) should therefore only be allocated when necessary for technical or operational reasons.

The TSB would be responsible for coordinating the allocation of new T digits with the competent Study Groups.

**Table A.2/E.217 – Value of T digit(s) for various applications**

<b>T digit(s)</b>	<b>Application</b>
0	Group call in Inmarsat-A system (see A.4.2.2)
1	Ordinary call in Inmarsat-A system (see A.4.2.1)
2	Reserved for future use
3	Ordinary call in Inmarsat-B system (see A.4.3)
4	Ordinary call in Inmarsat-C system (see A.4.4)
5	Ordinary call in Inmarsat Aeronautical system (see A.4.5)
6	Ordinary call in Inmarsat-M system (see A.4.6)
76	Ordinary call in Inmarsat-mini-M system (see A.4.7)
70-75 and 77-79	Reserved for future use
8	Expedient access to special service terminations in Inmarsat-A system (see A.4.2.3)
9	Reserved for future expansion (see A.4.8)

## **A.4.2 Formats for Inmarsat-A system**

### **A.4.2.1 Ordinary calls**

The number format used for ordinary calls to ship earth stations in the Inmarsat-A system is as follows:

$$1 X_1 X_2 X_3 X_4 X_5 X_6 \text{ (7 digits)}$$

where 1 corresponds to the T digit and the digits  $X_1 X_2 X_3 X_4 X_5 X_6$  are allocated to ships by Inmarsat.

The length of the Inmarsat mobile number will be 7 digits, making the length of the Inmarsat mobile international number equal to 10 digits.

It should be noted that the Inmarsat-A system will not implement the planned Single Network Access Code mode of operation using the single E.164 code 870, due to technical, operational and financial considerations.

### **A.4.2.2 Group calls**

For group calls, the Inmarsat mobile number takes the following format:

$$0 X_1 X_2 X_3 X_4 X_5 X_6 X_7 X_8 \text{ (9 digits)}$$

where 0 corresponds to the T digit and  $X_1$  through  $X_8$  takes values as shown in Annex B.

The length of the Inmarsat mobile number will be 9 digits, making the length of the Inmarsat mobile international number equal to 12 digits.

### **A.4.2.3 Access to special service terminations on board the ship**

In order to handle automatic data and facsimile calls in the Inmarsat-A system, the following format is proposed:

$$8 Y 1 X_1 X_2 X_3 X_4 X_5 X_6 \text{ (9 digits)}$$

where 8 corresponds to the T digit, the digits  $X_1$  through  $X_6$  take the same value as in A.4.2.1 and the digit Y determines the service termination. Table A.3 lists the values of digit Y for various applications.

NOTE 1 – The Inmarsat mobile international number will then have the following format:

CCC 8 Y 1 X<sub>1</sub>X<sub>2</sub>X<sub>3</sub>X<sub>4</sub>X<sub>5</sub>X<sub>6</sub> (12 digits)

NOTE 2 – The digits Y, 1, etc., need not be analysed in the international network for routing or charging purposes.

**Table A.3/E.217 – Values of digit Y for various applications**

Y digit	Application
0	Reserved for future use
1	Facsimile, Group 3
2 (Note 1)	Virtual call packet mode data service, ITU-T Rec. X.25
3 (Note 2)	Mobile-to-shore high speed data at 56 kbit/s
4 (Note 2)	Mobile-to-shore high speed data at 64 kbit/s
5	Duplex high speed data at 56 kbit/s
6	Duplex high speed data at 64 kbit/s
7 through 9	Reserved for future use
<p>NOTE 1 – The number 8 2 1 X<sub>1</sub>X<sub>2</sub>X<sub>3</sub>X<sub>4</sub>X<sub>5</sub>X<sub>6</sub> is not available for subscriber dialling in the PSTN or ISDN. The number will be used by interworking units between packet switched public data networks and the PSTN in order to forward data calls to mobile ship earth stations.</p> <p>NOTE 2 – These services are originated by the terrestrial customer although the high speed data is provided in the mobile to fixed direction.</p>	

### A.4.3 Formats for Inmarsat-B system

#### A.4.3.1 Maritime mobile – Ordinary calls

For ordinary calls to ship earth stations in the Inmarsat-B system, the format shall be initially:

3 M<sub>1</sub>I<sub>2</sub>D<sub>3</sub>X<sub>4</sub>X<sub>5</sub>X<sub>6</sub>Z<sub>1</sub>Z<sub>2</sub> (9 digits)

where 3 corresponds to the T digit and the digits M<sub>1</sub>I<sub>2</sub>D<sub>3</sub>X<sub>4</sub>X<sub>5</sub>X<sub>6</sub> are the first 6 digits of the ship station identity MIDXXX000 (see Attachment I to Annex A). The digits Z<sub>1</sub>Z<sub>2</sub> may be used for, identifying terminal equipment connected to a ship earth station, for discriminating between channels of multichannel ship earth stations, for discriminating between several ship earth stations on the same ship and for identification of special Inmarsat service terminations, e.g. Group 3 facsimile service.

The length of the Inmarsat mobile number will be 9 digits, making the length of the Inmarsat mobile international number equal to 12 digits.

Special requirements on the allocation of the digits Z<sub>1</sub>Z<sub>2</sub> are given in Attachment III to Annex A.

#### A.4.3.2 Land mobile – Ordinary Calls

For ordinary calls to land-based mobile earth stations in the Inmarsat-B system, the format shall be initially:

3 8 L<sub>2</sub>I<sub>3</sub>D<sub>4</sub>X<sub>5</sub>X<sub>6</sub>X<sub>7</sub>X<sub>8</sub> (9 digits)

where 3 corresponds to the T digit and the digit 8 signifies a land-based mobile earth station and the digits L<sub>2</sub>I<sub>3</sub>D<sub>4</sub> provide land identification digits which are used to identify the country of registry.

The length of the Inmarsat mobile number will be 9 digits, making the length of the Inmarsat mobile international number equal to 12 digits.

#### **A.4.3.3 Land and maritime high speed data**

The number format:

$$3\ 9\ X_2X_3X_4X_5X_6X_7X_8$$

where the digit before  $X_2$  takes the value 9; this is reserved for Inmarsat-B land and maritime high-speed data service.

The length of the Inmarsat mobile number will be 9 digits, making the length of the Inmarsat mobile international number equal to 12 digits.

#### **A.4.3.4 Group calls**

For further study.

#### **A.4.3.5 Future extension of the number**

The Inmarsat mobile number may be extended to 12 digits as the number capacity of the international network is increased (see ITU-T Rec. E.165 and associated ITU-T Rec. E.162). Attachment III to Annex A proposes a method by which this expansion can be made in order to allow two-number lengths to coexist on the same T digit.

### **A.4.4 Format for Inmarsat-C system**

#### **A.4.4.1 Maritime mobile – Ordinary calls**

For ordinary calls to ship earth stations in the Inmarsat-C system, the format shall be initially:

$$4\ M_1I_2D_3X_4X_5X_6X_7X_8\ (9\ \text{digits})$$

where 4 corresponds to the T digit and where at least the digits  $M_1I_2D_3X_4X_5X_6$  are part of the ship station identity. The digits  $X_7X_8$  may also be part of the ship station identity or be used for discrimination between several ship earth stations on the same ship. In the latter case,  $X_7X_8$  becomes  $Z_1$  and  $Z_2$  and the principle of Attachment III to Annex A should be followed.

The number format:

$$4\ X_1X_2X_3X_4X_5X_6X_7X_8\ (9\ \text{digits})$$

where the digit  $X_1$  takes the value 8; this is reserved for future Inmarsat applications.

The length of the Inmarsat mobile number will be 9 digits, making the length of the Inmarsat mobile international number equal to 12 digits.

#### **A.4.4.2 Land mobile – Ordinary calls**

For ordinary calls to land-based mobile earth stations in the Inmarsat-C system, the format shall be initially:

$$4\ 9\ L_2I_3D_4X_5X_6X_7X_8\ (9\ \text{digits})$$

where 4 corresponds to the T digit and the digit 9 signifies a land-based mobile earth station and the digits  $L_2I_3D_4$  provide land identification digits which are used to identify the country of registry.

The length of the Inmarsat mobile number will be 9 digits, making the length of the Inmarsat mobile international number equal to 12 digits.

#### **A.4.4.3 Group calls**

Group call selection in the Inmarsat-C system is achieved using two-stage access procedures which do not conform with the scheme outlined in Attachment II to Annex A.

#### A.4.4.4 Future extension of the number

For maritime satellite applications, the Inmarsat mobile number used in the Inmarsat-C system may be extended to 12 digits as the numbering capacity of the international network is increased (see ITU-T Rec. E.165 and associated ITU-T Rec. E.162) in a way similar to those of the B system (see A.4.3.5). Attachment III to Annex A proposes a method by which this expansion can be made in order to allow two-number lengths to coexist on the same T digit.

#### A.4.5 Format for Inmarsat Aeronautical system

The general format of numbers in the Inmarsat Aeronautical system is as follows:

$$5 X_1 X_2 X_3 X_4 X_5 X_6 X_7 X_8 \text{ (9 digits)}$$

where 5 corresponds to the T digit.

The format of the digit  $X_1$  through  $X_8$  ensures the provision of two fundamental requirements for the Inmarsat (aeronautical) mobile number, namely:

- 8-digit primary address for all aircraft; and
- 6-digit alternate address and two DDI digits for selected aircraft.

##### A.4.5.1 Primary address

For primary addressing requirements, the number format will be as follows:

$$5 X_1 X_2 X_3 X_4 X_5 X_6 X_7 X_8$$

- T digit = 5;
- For  $X_1 = 0$  to 7,

the digits  $X_1 X_2 X_3 X_4 X_5 X_6 X_7 X_8$  are the primary address of aircraft earth station, where  $X_n$  is the octal digit representing the corresponding 3 bits of the 24 bit ICAO technical address, and  $X_2$  to  $X_8 = 8$  or 9 are reserved for future use.

The primary address is applicable to both Aeronautical Public Correspondence (APC) telephony (and other circuit-mode) and APC packet-mode (data) services.

##### A.4.5.2 Alternate address

In order to provide a DDI capability for certain aircraft, the number format will be as follows:

$$\text{For } X_1 = 8,$$

the digits  $X_1 X_2 X_3 X_4 X_5 X_6 Z_1 Z_2$  are composed of a 6-digit alternate address of an aircraft earth station followed by a 2-digit extension number,

where:

- $X_n$  are arbitrarily assigned digits to uniquely identify a particular aircraft earth station; and
- $Z_n$  are DDI digits to uniquely identify individual on-board terminals;
- the alternate address is only to be used for APC telephony (and other circuit-mode) service;
- the alternate address shall not be used for APC packet-mode (data) service; and
- the relationship between the ICAO 24-bit technical address and the Inmarsat mobile number will be determined by means of an algorithmic association at the aeronautical Ground Earth Station (GES).

### A.4.5.3 Special facilities

In order to provide access to special facilities provided at Inmarsat Aeronautical ground earth stations for fixed network subscribers, the following number format is to be used:

$$5 X_1 X_2 X_3 X_4 X_5 X_6 X_7 X_8$$

For  $X_1 = 9$ , the digits  $X_1 \dots X_n$  are of variable length and used for the special purpose of identifying special facilities at the ground earth station,

where:

- $X_2 \dots X_n$  is for further study (tentatively,  $X_2 = 6$  is reserved for special applications, which are unique to individual ground earth stations);
- access to ground earth station special facilities, using  $X_1 = 9$ , will be available from both PSPDN and the PSTN/ISDN; however, the definition and means to access the various facilities available, may be different for PSPDN and PSTN/ISDN access.

### A.4.6 Formats for Inmarsat-M system

#### A.4.6.1 Maritime mobile – Ordinary calls

For ordinary calls to ship earth stations in the Inmarsat-M system, the format shall be initially:

$$6 M_1 I_2 D_3 X_4 X_5 X_6 Z_1 Z_2 \text{ (9 digits)}$$

where 6 corresponds to the T digit and the digits  $M_1 I_2 D_3 X_4 X_5 X_6$  are the first six digits of the ship station identity MIDXXX000 (see Attachment I to Annex A). The digits  $Z_1 Z_2$  may be used for identifying terminal equipment connected to a ship earth station, for discriminating between channels of a multichannel ship earth station, for discriminating between several ship earth stations on the same ship and for identification of special Inmarsat service terminations, e.g. Group 3 facsimile service.

The length of the Inmarsat mobile number will be 9 digits, making the length of the Inmarsat mobile international number equal to 12 digits.

Special requirements on the allocation of the digits  $Z_1 Z_2$  are given in Attachment III to Annex A.

#### A.4.6.2 Land mobile – Ordinary calls

For ordinary calls to land-based mobile earth stations in the Inmarsat-M system, the format shall be initially:

$$6 8/9 L_2 I_3 D_4 X_5 X_6 X_7 X_8 \text{ (9 digits)}$$

where 6 corresponds to the T digit, and the digits 8 or 9 signify a land-based mobile terminal and the digits  $L_2 I_3 D_4$  provide land identification digits which are used to identify the country of registry.

The length of the Inmarsat mobile number will be 9 digits, making the length of the Inmarsat mobile international number equal to 12 digits.

#### A.4.6.3 Group calls

For further study.

#### A.4.6.4 Future extension of the number

The Inmarsat mobile number may be extended to 12 digits as the number capacity of the international network is increased (see ITU-T Rec. E.165 and associated ITU-T Rec. E.162). Attachment III to Annex A proposes a method by which this expansion can be made in order to allow two-number lengths to coexist on the same T digit.

#### **A.4.7 Formats for Inmarsat-mini-M system**

##### **A.4.7.1 Ordinary calls – Maritime mobile**

For ordinary calls to ship earth stations in the Inmarsat-mini-M system, the format shall be initially:

$$76 X_1 X_2 X_3 X_4 X_5 X_6 X_7$$

where the digits 76 correspond to the T digits and the digits  $X_1 X_2 X_3 X_4 X_5 X_6 X_7$  will be analysed by the Inmarsat land earth station handling the call to determine that the mobile is a maritime-based mobile earth station. The digits  $X_1$  through  $X_7$  take the value of 0-9 for each value of X with the exception of digit  $X_6$  which will take the values 1-9.

The length of the Inmarsat mobile number will be 9 digits, making the length of the Inmarsat mobile international number equal to 12 digits.

##### **A.4.7.2 Ordinary calls – Land mobile**

For ordinary calls to land-based mobile earth stations in the Inmarsat-mini-M system, the format shall be initially:

$$76 X_1 X_2 X_3 X_4 X_5 X_6 X_7$$

where the digits 76 correspond to the T digits and in conjunction with the digits  $X_1$  through  $X_7$  will be analysed by the Inmarsat land earth station handling the call to determine that the mobile is a land-based mobile earth station. The digits  $X_1$  through  $X_7$  take the value of 0-9 for each value of X with the exception of digit  $X_6$  which will take the values 1-9.

The length of the Inmarsat mobile number will be 9 digits, making the length of the Inmarsat mobile international number equal to 12 digits.

##### **A.4.7.3 Group calls**

For further study.

##### **A.4.7.4 Future extension of the number**

The Inmarsat mobile number may be extended to 12 digits as the numbering capacity of the international network is increased (see ITU-T Rec. E.165 and associated ITU-T Rec. E.162). Attachment III to Annex A proposes a method by which this expansion can be made in order to allow two-number lengths to coexist on the same T digits.

#### **A.4.8 Future Inmarsat systems**

T digits should be allocated for each new Inmarsat system in the future. If an earlier system is taken out of service, T digits allocated for that system may be reallocated to new systems.

If the capacity provided by the T digits of Table A.2 is not sufficient, then further capacity may be made available by using T = 9 followed by an additional digit (U) as follows:

$$9 U X_1 X_2 \dots X_k$$

where the digits  $X_1 \dots X_k$  identifies the mobile earth station and any extension connected to it. The digit U is used to identify new Inmarsat systems or for technical and operational reasons.

The TSB would be responsible for coordinating the allocation of new U digits with the competent Study Groups.

#### **A.5 Digit analysis**

If different routing and/or accounting applies to different Inmarsat systems, then the digits CCC T or CCC T<sub>1</sub>T<sub>2</sub> need to be analysed at international exchanges.

If the routing capacity is increased by using  $T = 9$  (see A.4.8), then the digits CCC9U need to be analysed.

The above requirements on number analysis are in compliance with ITU-T Rec. E.164. See also ITU-T Rec. E.165 and associated ITU-T Rec. E.162.

The digits Y, 1, etc., following CCC 8 (see A.4.2.3) need not be analysed in the international network for routing or charging purposes.

## **A.6 Presentation of Inmarsat mobile numbers in directories**

### **A.6.1 General**

Inmarsat mobile numbers may be published in separate directories or in separate sections of general directories.

In directories, only the Inmarsat mobile numbers, as specified in A.4.1, shall be listed. The country code to be used and instruction for the subscribers should be contained in general parts of the directories.

The use of digits 8 Y in the format for the Inmarsat-A system in A.4.2.3 should also be explained in the general parts of the directories. This information should also include indications as to whether or not these numbers are accepted for calls to one or more ocean areas.

The subject on directories for mobile-satellite services requires further studies.

## **Attachment I to Annex A**

### **Use of ship station identification for maritime applications of systems operated by Inmarsat (Normative)**

#### **Reservation on the use of this Attachment**

The Inmarsat-B, -M, -mini-M and -C systems depend on analysis of blocks 2 and 3 unlike Inmarsat-A and the following text is therefore the subject of further study.

#### **A.I.1 General**

Appendix 43 of the Radio Regulations defines an international identification plan for ships participating in the maritime mobile services. The ship station identity consists of 9 digits and is composed as follows:

$$M_1 I_2 D_3 X_4 X_5 X_6 X_7 X_8 X_9$$

where the digits  $M_1 I_2 D_3$  determine the ship's nationality.

For ships participating in systems operated by Inmarsat, Annex A specifies a format of the Inmarsat mobile number as follows:

$$T X_1 X_2 \dots X_k$$

The purpose of the digit T is explained in clause A.4.

For maritime applications, the number can be regarded as being composed of three blocks as follows:

<b>T</b>	<b><math>X_1 X_2 \dots X_n</math></b>	<b><math>X_{n+1} \dots X_k</math></b>
Block 1	Block 2	Block 3

where the digit in block 1 is the digit T, the digits in block 2 are related to the ship station identity as explained below and block 3 contains digits which are used for other purposes (e.g. on-board identification). In some Inmarsat systems, block 3 may be empty.

NOTE 1 – For the Inmarsat-A system, Inmarsat applies a ship numbering plan which is not related to the ship station identification plan of the Radio Regulations. In this numbering plan the digit T takes the fixed value  $T = 1$ .

NOTE 2 – For Inmarsat-B, –M and –C systems, the digit  $X_1$  may take either of the values 8 or 9 depending on the specific system to be used for future applications. In this case, the digits in block 2 are not related to the ship station identification plan.

### **A.I.2 Constraints on ship station identification and numbering**

**A.I.2.1** The present number capacity of the PSTN requires that the Inmarsat mobile number consists of 9 or fewer digits. As the number capacity of the PSTN/ISDN is increased to 15 digits, then the Inmarsat mobile number can consist of up to 12 digits.

#### **A.I.2.2 The new numbering plan must cater for capabilities as follows:**

- provision of a reasonable on-board identification capacity for calls to ship board terminal equipment connected to the ship earth station;
- possibility of several ship earth stations on the same ship where all ship earth stations have a number associated with the unique ship station identity of the ship;
- capability of supporting multichannel ship earth stations.

These capabilities may require digits in block 3 of the Inmarsat mobile number, thus reducing the available space for block 2.

### **A.I.3 Application of ship station identity**

#### **A.I.3.1 Digit capacity in block 2**

The Inmarsat-A system can only support 6 digits in block 2 because of the addressing capacity on the radio path.

The addressing capacity of Inmarsat-B, –M and –C systems on the radio path can cater for up to 7 digits in block 2. However, the limited digit capacity of the terrestrial networks puts the following initial constraints on the number of digits in block 2:

- For the Inmarsat-B and –M systems, the initial digit capacity in block 2 is 6 digits to allow sufficient capacity in block 3 for supporting the capabilities listed in A.I.2.2. In the future (see ITU-T Rec. E.165 and associated ITU-T Rec. E.162), the capacity of block 2 may be extended to 8 or 9 digits.
- For the Inmarsat-C system, the initial digital capacity in block 2 is 6 digits to allow sufficient capacity in block 3 for supporting the possibility of identifying several terminal equipments connected to a ship earth station and of several ship earth stations on the same ship. In the future, the capacity of block 2 may be extended to 7 or more digits.

#### **A.I.3.2 Mapping between the ship station identity and the digits in block 2**

The mapping between the ship station identity and the digits in block 2 is shown in Table A.I.1.

For ship earth stations, the ship station identity is thus derived from the digits in block 2 by adding 0s at the end until the identity consists of 9 digits.

In order to distinguish between Inmarsat mobile numbers consisting of 9 and 12 digits (if they coexist), the digit  $X_7$  of the ship station identity, the eighth digit of the Inmarsat mobile number (see ITU-T Rec. E.210) must take the fixed value 0. This constraint is not valid when only 12-digit numbers exist in the future (see also Attachment III to Annex A).

The digit T in block 1 determines the type of ship earth station and, implicitly, the number of digits in block 2. The relationship is shown in Table A.I.2. Further details of the number structure are given in the text of this Annex.

**Table A.I.1/E.217 – Mapping between ship station identity and digits in block 2 of the mobile station number**

Ship station identity			XXX XXX 000	XXX XXX 0X0	XXX XXX 0XX
Block 2 mapping	Size of block 2	6 digits	XXX XXX	Mapping not possible	Mapping not possible
		7 digits	XXX XXX 000	Mapping not possible	Mapping not possible
X Any digit between zero (0) and nine (9).					
0 Zero (0).					

**Table A.I.2/E.217 – Relationship between the T digit(s) and the format of the ship station identity in 12-digit Inmarsat mobile international number**

Value of T digit(s)	Inmarsat standard system	Number of digits in block 2	Format of ship station identity
0	A	(Note 1)	(Note 1)
1	A	6	(Note 2)
2	Reserved	–	–
3	B	6	XXX XXX 000
4	C	6	XXX XXX 000
5	Aeronautical	(Note 3)	(Note 3)
6	M	6	XXX XXX 000
70-75 and 77-79	Reserved	–	–
76	Mini-M	6	–
8	A	(Note 4)	(Note 4)
9	Future expansion	Further study	Further study

NOTE 1 – Group call address. See Attachment II to Annex A for format of group addresses.

NOTE 2 – The Inmarsat mobile number is not related to the ship station identification plan of Appendix 43, Radio Regulations.

NOTE 3 – The numbering plan for the aeronautical satellite service is not related to the ship station identification plan of Appendix 43, Radio Regulations.

NOTE 4 – See A.4.2.3 for the use of this T digit.

### A.I.3.3 Ships equipped with several Inmarsat systems

The ship station identity for such ships is the one derived from the ship earth station of a specific Inmarsat system having the smallest size of block 2. This applies only if the numbering plans for the ship earth station of the specific Inmarsat systems are related to the ship station identification plan.

## Attachment II to Annex A

### Group call numbering scheme for Inmarsat systems (Normative)

#### A.II.1 Categories for group call services

At present, four different categories of group call service have been envisaged within the maritime mobile satellite service.

##### A.II.1.1 National group calls

The category is defined to address all ships of the same nationality.

##### A.II.1.2 Fleet group calls

This category is defined to address all ships within one fleet.

##### A.II.1.3 Selected group calls

This category is defined to address a number of ships having a community of interest irrespective of nationalities or fleets, and forming a predefined group.

##### A.II.1.4 Area group calls

This category is defined to address all ships of any nationality located within a predetermined geographical area.

#### A.II.2 Group call formats

**A.II.2.1** The general group call format is  $TX_1X_2X_3X_4X_5X_6X_7X_8$ , where the digits  $TX_1X_2X_3X_4X_5X_6X_7X_8$  take the values in A.II.2.2 for Inmarsat-A and the values in A.II.2.3 for other Inmarsat systems.

**A.II.2.2** The group call numbering schemes for the Inmarsat-A system will use 8 decimal digits  $X_1 \dots X_8$  following the T digit, with  $T = 0$ , allocated as follows:

$M_2I_3D_40_50_60_70_80_9$	National group call
$M_2I_3D_4F_5F_6F_7F_8F_9$	Fleet group call
$0_20_3S_4S_5S_6S_7S_8S_9$	Selected group call
$0_20_30_4A_5A_6A_7A_8A_9$	Area group call

where:  $M_2 \neq 0$ ,  $M_2 \neq 1$ ,  $F_5 \neq 0$  and  $S_4 \neq 0$ .

For  $T = 1$  or  $8$ , the group call number is not valid.

**A.II.2.3** For Inmarsat-B, -M, -mini-M and Inmarsat Aeronautical, the format of the digits  $X_1 \dots X_8$  is for further study.

**A.II.2.4** The MIDs in national and fleet group numbers are those allocated in Table 1 of Appendix 43, Radio Regulations.

**A.II.2.5** In accordance with No. 4 of the above-mentioned Appendix 43, the particular MID reflects only the country allocating the group call identity and therefore does not prevent group calls to fleets containing more than one ship nationality. Allocation of selected group numbers should be avoided when the same group could equally well be assigned a fleet group number.

**A.II.2.6** National group numbers and fleet group numbers should be allocated by countries. Selected group numbers and area group numbers as applicable to Inmarsat systems should be allocated by Inmarsat; allocation of such numbers may require cooperation with other organizations.

**A.II.2.7** A country having assigned a national group or fleet group number should notify the Director General of Inmarsat if those numbers are going to be used within Inmarsat systems.

## **Attachment III to Annex A**

### **Structure of the on-board identification digits in the Inmarsat numbering plan (Normative)**

#### **A.III.1 Introduction**

Within the numbering scheme, two digits  $Z_1Z_2$  have been allocated (see A.4.3.1 and A.4.4.1) to on-board identification. The purpose of these digits is to provide means for identifying different ship earth stations on the same ship, and different instruments, e.g. telephone instrument and a facsimile machine, connected to the same ship earth station.

The length of the Inmarsat mobile international number may be extended from 12 digits to 15 digits as the numbering capacity of the international network is increased (see ITU-T Rec. E.165 and associated ITU-T Rec. E.162).

It is considered that the above aspects can be met by careful selection of the significance and values of  $Z_1Z_2$ .

#### **A.III.2 Proposed structure**

As outlined earlier, it is necessary for  $Z_1Z_2$  to achieve two identification roles, i.e. station and instrument. It is considered that this can be accomplished by allocating  $Z_1$  to multi-ship earth station identification and  $Z_2$  to multi-instrument identification.

This structure would permit the uniform allocation of numbers to be achieved and would allow the growth of ship earth stations to be independent of the growth of instruments on any one ship earth station.

Further, in order to allow the future expansion of the numbering length, it is proposed that  $Z_1$  should never be equal to 0 (zero) and the eighth digit of a 12-digit ship earth station number should always be equal to 0 (zero) as long as these two-number lengths coexist for the same value of T digit, i.e.:

- T MID XXX $Z_1Z_2$  (9 digits with  $Z_1 \neq 0$ ).
- T MID XXX0XX $Z_1Z_2$  (12 digits).

The above approach would then allow the unambiguous identification of 9-digit and 12-digit ship earth station numbers on the same T digit.

NOTE – The above constraint on the eighth digit is not required in the future when only 12-digit numbers exist in Inmarsat systems.

#### **A.III.3 Allocation**

Therefore, from the above, a ship with one ship earth station and one instrument  $Z_1Z_2$  would equal 10. If another instrument were added, then  $Z_1Z_2$  would equal 11 for this instrument.

If a ship had two earth stations of the same standard and one instrument attached to each, then the values of  $Z_1Z_2$  would be 10 for one station, and 20 for the second station. If a second instrument were added to the second station, then the value of  $Z_1Z_2$  would be 21 for this instrument.

Should it be necessary to allocate more than ten instruments per ship earth station, then another value of  $Z_1$  would be allocated to the earth station, e.g. for the tenth instrument  $Z_1Z_2$  would be equal to 19 and for the eleventh instrument 20 would be allocated or the next free value  $Z_1$ .

Table A.III.1 gives some illustrations of the above allocations.

**Table A.III.1/E.217 – Examples of  $Z_1Z_2$  allocation for ship earth stations with the same T digit**

Ship earth station	Instrument	$Z_1$	$Z_2$
<i>Multi-ship earth stations</i>			
X	Telephone	1	0
Y	Telephone	2	0
<i>Multi-ship earth stations and multi-instruments</i>			
X	Telephone	1	0
	Facsimile	1	1
Y	Telephone	2	0
Z	Telephone	3	0
	Facsimile	3	1
	Telephone	3	2
	Telephone	3	3
<i>Multi-instrument earth stations</i>			
X	Telephone	1	0
	Telephone	1	1
	Facsimile	1	2
	Telephone	1	9
	Telephone	3	0
Y	Telephone	2	0
	Facsimile	2	1
Z	Telephone	4	0

## Annex B<sup>2</sup>

### Numbering plan for access to the mobile-satellite services of Inmarsat from the international telex service

#### B.1 Introduction

##### B.1.1 Purpose

The purpose of this annex is to specify a telex numbering plan for mobile earth stations in systems operated by Inmarsat. Such systems may include maritime land and aeronautical satellite systems. In the future the range of mobile satellite systems may also include satellite systems for other applications.

<sup>2</sup> This annex reproduces the content of former ITU-T Rec. F.125.

## **B.1.2 Terminology**

The telephone/ISDN numbering plan for Inmarsat is contained in ITU-T Rec. E.215. ITU-T Recs E.215 and F.125 are designed to be as similar as possible.

For the purpose of this annex, the following definitions apply:

**B.1.2.1 ship station identity:** As defined in the Radio Regulations, Appendix 43. See also ITU-T Rec. F.120.

**B.1.2.2 Inmarsat mobile international number:** The addressing information, excluding any prefix, comprising a telex destination code and Inmarsat mobile number, used to access a terminal equipment connected to an Inmarsat mobile earth station from the international telex service.

**B.1.2.3 Inmarsat mobile number:** The part of the Inmarsat mobile international number which follows the telex destination code allocated to an Inmarsat satellite region.

**B.1.2.4 Inmarsat mobile terminal number:** That part of the Inmarsat mobile number which identifies a specific terminal equipment connected to the mobile earth station.

### **B.1.2.5 Other definitions**

For definition of terms such as maritime mobile-satellite service, aeronautical mobile-satellite service, ship earth station, etc., see the Radio Regulations.

## **B.1.3 Basic considerations**

The considerations which form the basis for the numbering plan are:

**B.1.3.1** It should be possible to identify a mobile earth station, uniquely from the Inmarsat mobile number.

**B.1.3.2** The Inmarsat mobile number should have a format where the same number could be used for access from all types of public network.

**B.1.3.3** The number of telex destination codes listed in ITU-T Rec. F.69 required for supporting future Inmarsat requirements should be as few as possible.

**B.1.3.4** Different routings may be used for calls to mobile earth stations designed to different Inmarsat system standards.

**B.1.3.5** Recognized operating agencies (ROAs) and Inmarsat may apply different charging and accounting rates to different Inmarsat system standards.

**B.1.3.6** The numbering plan should provide capacity for the identification of terminal equipment connected to a mobile earth station.

**B.1.3.7** The numbering plan should support access to multichannel mobile earth stations.

**B.1.3.8** Any new mobile earth station numbering plan should incorporate numbering plan(s) already in use for the Inmarsat-A system.

**B.1.3.9** The length of the Inmarsat mobile international number should not exceed 12 digits to comply with ITU-T Recs U.11 and U.12.

**B.1.3.10** For maritime-satellite applications the ship station numbering plan should support access to several ship earth stations in the same ship within one ship station identity.

**B.1.3.11** The Radio Regulations should make provision for the allocation of additional maritime identification digits (MIDs) for a specific country, when necessary.

## B.2 Format of Inmarsat mobile international number

The format of the Inmarsat mobile international number is:

$$CCCT X_1 \dots X_k$$

where CCC is the telex destination code, in accordance with ITU-T Rec. F.69, allocated to Inmarsat and  $T X_1 \dots X_k$  is the Inmarsat mobile number. The format of the Inmarsat mobile number is given in B.4.

NOTE – The Inmarsat mobile international number will vary depending on the satellite region selected by the caller in which connection with the MES is to be attempted.

## B.3 Telex destination codes for Inmarsat

The telex destination codes (see ITU-T Rec. F.69) allocated for Inmarsat are shown in Table B.1.

**Table B.1/E.217 – Telex destination codes for Inmarsat**

Telex destination code	Geographical destination
581	Atlantic-east satellite region, Inmarsat
582	Pacific satellite region, Inmarsat
583	Indian satellite region, Inmarsat
584	Atlantic-west satellite region, Inmarsat

## B.4 Format of Inmarsat mobile number

### B.4.1 General format

**B.4.1.1** The general format of the Inmarsat mobile number is:

$$T X_1 X_2 \dots X_k$$

where the digit T is used for discrimination between different Inmarsat systems.

The formats used for the various Inmarsat systems are defined below. The values of the T digits are summarized in Table B.2.

The T digits represent a limited resource and a new T digit should therefore only be allocated when necessary for technical or operational reasons.

The TSB is responsible for coordinating the allocation of new T (or U) (see B.4.6) digits with the competent Study Groups.

**Table B.2/E.217 – Value of T digit for various applications**

<b>T digit</b>	<b>Applications</b>
0	Group call in Inmarsat-A, see B.4.2.2
1	Ordinary call in Inmarsat-A, see B.4.2.1
2	Reserved for future use
3	Ordinary call in Inmarsat-B, see B.4.3
4	Ordinary call in Inmarsat-C, see B.4.4
5	Ordinary call in Inmarsat aeronautical system, see B.4.5
6	Inmarsat-M (excluding telex)
7	Reserved for future use
8	Expedient access to special service terminations in Inmarsat-A, see ITU-T Rec. E.215
9	Reserved for future expansion, see B.4.6

**B.4.1.2** To meet the requirements of the international telex service, and, in particular, the signalling conditions specified in ITU-T Recs U.11 and U.12, the Inmarsat mobile number should not contain more than 9 digits.

## **B.4.2 Formats of the Inmarsat mobile number for Inmarsat-A system**

### **B.4.2.1 Ordinary calls**

The format of the Inmarsat mobile number used for ordinary calls to mobile earth stations in Inmarsat-A system is as follows:

$$1 X_1X_2X_3X_4X_5X_6 \text{ (7 digits)}$$

where 1 corresponds to the T digit and the digits  $X_1X_2X_3X_4X_5X_6$  are allocated by Inmarsat.

### **B.4.2.2 Group calls**

For group calls, the Inmarsat mobile number takes the following format:

$$0 X_1X_2X_3X_4X_5X_6X_7X_8 \text{ (9 digits)}$$

where 0 corresponds to the T digit and  $X_1$  through  $X_8$  are allocated by Inmarsat.

The group call numbering scheme is shown in B.II.2.2.

## **B.4.3 Formats of the Inmarsat mobile number for Inmarsat-B system**

### **B.4.3.1 Ordinary calls**

The format of the Inmarsat mobile number used for ordinary calls to mobile earth stations in Inmarsat-B system, shall be as follows:

$$3 M_1I_2D_3X_4X_5X_6X_7X_8 \text{ (9 digits)}$$

where 3 corresponds to the T digit and the  $M_1I_2D_3X_4X_5X_6$  are the first 6 digits of the ship station identity MIDXXX000 (see Attachment I to Annex B). The Inmarsat mobile terminal number digits  $X_7X_8$  may be used for identifying terminal equipment connected to a ship earth station, for discriminating between channels for multichannel ship earth stations and for discriminating between several ship earth stations on the same ship.

The number format is:

$$3 X_1X_2X_3X_4X_5X_6X_7X_8 \text{ (9 digits)}$$

where the digit  $X_1$  may take the values 8 or 9, which are reserved for future Inmarsat applications.

### **B.4.3.2 Group calls**

For further study.

## **B.4.4 Format of the Inmarsat mobile number for Inmarsat-C system**

### **B.4.4.1 Ordinary calls – Maritime mobile**

The format of the Inmarsat mobile number used for ordinary calls to mobile earth stations in Inmarsat-C system, shall be as follows:

$$4 M_1 I_2 D_3 X_4 X_5 X_6 X_7 X_8 \text{ (9 digits)}$$

where 4 corresponds to the T digit and where at least the digits  $M_1 I_2 D_3 X_4 X_5 X_6$  are part of the ship station identity. The digits  $X_7 X_8$  may also be part of the ship station identity or be used for discrimination between several ship earth stations on the same ship.

The number format is:

$$4 X_1 X_2 X_3 X_4 X_5 X_6 X_7 X_8 \text{ (9 digits)}$$

### **B.4.4.2 Ordinary calls – Land mobile**

The format of the Inmarsat mobile number used for ordinary calls to land-based mobile earth stations in the Inmarsat-C system, shall be as follows:

$$4 8 M_2 C_3 C_4 X_5 X_6 X_7 X_8 \text{ (9 digits)}$$

where 4 corresponds to the T digit and the digit 8 signifies a land-based mobile earth station and the digits  $M_2 C_3 C_4$  correspond with the mobile country codes listed in the complement to ITU-T Rec. E.212 published in an annex to the ITU Operational Bulletin.

### **B.4.4.3 Group calls**

Group call selection in the Inmarsat-C system is achieved using two stage access procedures which do not conform with the scheme outlined in Attachment II to Annex B.

## **B.4.5 Format of the Inmarsat mobile number for Inmarsat aeronautical system**

The general format of Inmarsat mobile numbers in the Inmarsat aeronautical system is as follows:

$$5 X_1 X_2 X_3 X_4 X_5 X_6 X_7 X_8 \text{ (9 digits)}$$

where 5 corresponds to the T digit.

The format of the digits  $X_1$  through  $X_8$  is still to be determined.

## **B.4.6 Future Inmarsat systems**

T digits will be allocated for each new Inmarsat system in the future. If an earlier system is taken out of service, T digits allocated for that system may be reallocated to new systems.

If the capacity provided by the T digits of Table B.2 is not sufficient, further capacity may be made available by using  $T = 9$  followed by an additional digit (U) as follows:

$$9 U X_1 X_2 \dots X_k$$

where the digits  $X_1 \dots X_k$  identifies the mobile earth station and any extension connected to it. The digit U is used to identify new Inmarsat systems or for technical and operational reasons (see clause B.6).

## **B.5 Digit analysis**

If different routing and/or accounting arrangements are applied to different Inmarsat systems, the digits CCCT will need to be analysed at international exchanges.

If the routing capacity is increased by using  $T = 9$  (see B.4.6), the digits CCC9U need to be analysed and this is for further study.

## **B.6 Presentation of Inmarsat mobile numbers in directories**

### **B.6.1 General**

Inmarsat mobile numbers may be published in separate directories or in separate sections of general directories.

In directories, only the Inmarsat mobile numbers, as specified in B.4.1, shall be listed. The telex destination code to be used and instruction for the subscribers should be contained in general parts of the directories.

The subject of directories for mobile-satellite services requires further studies.

## **Attachment I to Annex B**

### **Use of ship station identification for maritime applications of systems operated by Inmarsat (Normative)**

#### **Reservation on the use of this annex.**

The Inmarsat-B and C systems depend on analysis of blocks 2 and 3 unlike Inmarsat-A and the following text is therefore the subject of further study.

#### **B.I.1 General**

Appendix 43 of the Radio Regulations defines an international identification plan for ships participating in the maritime mobile services. The ship station identity consists of 9 digits and is composed as follows:

$$M_1 I_2 D_3 X_4 X_5 X_6 X_7 X_8 X_9$$

where the digits  $M_1 I_2 D_3$  determine the ship's nationality.

For ships participating in systems operated by Inmarsat, the main part of this Recommendation specifies a format of the Inmarsat mobile number as follows:

$$T X_1 X_2 \dots X_k$$

The purpose of the digit  $T$  is explained in No.4 in the aforementioned Appendix 43.

For maritime applications, the number can be regarded as being composed of three blocks as follows:

<b>T</b>	<b><math>X_1 X_2 \dots X_n</math></b>	<b><math>X_{n+1} \dots X_k</math></b>
Block 1	Block 2	Block 3

where the digit in block 1 is the digit  $T$ , the digits in block 2 are related to the ship station identity as explained below, and block 3 contains digits which are used for other purposes (e.g. Inmarsat mobile terminal number). In some Inmarsat systems, block 3 may be empty.

NOTE 1 – For the Inmarsat-A system, Inmarsat applies a ship numbering plan which is not related to the ship station identification plan of the Radio Regulations. In this numbering plan the digit  $T$  takes the fixed value  $T = 1$ .

NOTE 2 – For Inmarsat-B and –C systems, the digit  $X_1$  may take the values 8 or 9 for non-maritime applications. In this case, the digits in block 2 are not related to the ship station identification plan.

## **B.I.2 Constraints on ship station identification and numbering**

**B.I.2.1** To meet the requirements of the international telex service, and in particular the signalling conditions specified in ITU-T Recs U.11 and U.12, the Inmarsat mobile number should not contain more than 9 digits.

**B.I.2.2** The new numbering plan must cater for the following:

- identification for calls to ship-board terminal equipment connected to the ship earth station;
- the possibility of several ship earth stations on the same ship where all ship earth stations have a number associated with the unique ship station identity of the ship;
- the capability of supporting multichannel ship earth stations.

These capabilities may require digits in block 3 of the Inmarsat mobile number, thus reducing the available space for block 2.

## **B.I.3 Applications of ship station identity**

### **B.I.3.1 Digit capacity in block 2**

The Inmarsat-A system can only support 6 digits in block 2 because of the addressing capacity on the radio path.

The addressing capacity of Inmarsat-B and –C systems on the radio path can cater for up to 7 digits in block 2. However, the limited digit capacity of the terrestrial networks puts the following initial constraints to the number of digits in block 2:

- for the Inmarsat-B system, the initial digit capacity in block 2 is 6 digits in order to allow sufficient capacity in block 3 for supporting the capabilities listed in B.I.2.2;
- for the Inmarsat-C system, the initial digital capacity in block 2 is 6 digits to allow sufficient capacity in block 3 for supporting the possibility of identifying several terminal equipments connected to a ship earth station and of several ship earth stations on the same ship.

### **B.I.3.2 Mapping between ship station identity and digits in block 2**

The mapping between ship station identity and digits in block 2 is shown in Table B.I.1.

**Table B.I.1/E.217 – Mapping between ship station identity and digits in block 2 of the Inmarsat mobile station number**

Ship station identity			XXX XXX 000	XXX XXX 0X0	XXX XXX 0XX
Block 2 mapping	Size of block 2	6 digits	XXX XXX	Mapping not possible	Mapping not possible
X Any digit between zero (0) and nine (9)					
0 Zero (0)					

For ship earth stations, the ship station identity is thus derived from the digits in block 2 by adding 0s at the end until the identity consists of 9 digits.

The digit T in block 1 determines the type of ship earth station and, implicitly, the number of digits in block 2. The relationship is shown in Table B.I.2. Further details of the number structure are given in Annex A.

**Table B.I.2/E.217 – Relationship between the digit T and the format of the ship station identity in 12 digit Inmarsat mobile international numbers**

<b>Value of digit T</b>	<b>Inmarsat standard system</b>	<b>Number of digits in block 2</b>	<b>Format of ship station identity</b>
0	A	(Note 1)	(Note 1)
1	A	6	(Note 2)
2	Reserved	–	–
3	B	6	XXX XXX 000
4	C	6	XXX XXX 000
5	Aeronautical	(Note 3)	(Note 3)
6	Reserved (Inmarsat-M)	6	(Note 5)
7	Reserved	–	–
8	A	(Note 4)	(Note 4)
9	Future expansion	Further study	Further study

NOTE 1 – Group call address (see Attachment II to Annex B for format of group call addresses).  
 NOTE 2 – The Inmarsat mobile number is not related to the ship station identification plan of Appendix 43, Radio Regulations.  
 NOTE 3 – The numbering plan for the aeronautical-satellite service is not related to the ship station identification plan of Appendix 43, Radio Regulations.  
 NOTE 4 – See clause 4 in Appendix 43, Radio Regulations for the use of this T digit.  
 NOTE 5 – Inmarsat-M (excluding telex).

### **B.I.3.3 Ships equipped with several Inmarsat systems**

The ship station identity for such ships is the one derived from the ship earth station standard having the smallest size of block 2. This applies only if the numbering systems for the ship earth station standards are related to the ship station identification plan.

## **Attachment II to Annex B**

### **Group call numbering scheme for the Inmarsat system (Normative)**

#### **B.II.1 Categories for group call services**

At present, four different categories of group call service have been envisaged within the maritime mobile-satellite service.

##### **B.II.1.1 National group calls**

The category is defined to address all ships of the same nationality.

##### **B.II.1.2 Fleet group calls**

This category is defined to address all ships within one fleet.

##### **B.II.1.3 Selected group calls**

This category is defined to address a number of ships having a community of interest irrespective of nationalities or fleets, and forming a predefined group.

#### **B.II.1.4 Area group calls**

This category is defined to address all ships of any nationality located within a predetermined geographical area.

#### **B.II.2 Group call formats**

**B.II.2.1** The general group call format is T X<sub>1</sub>X<sub>2</sub>X<sub>3</sub>X<sub>4</sub>X<sub>5</sub>X<sub>6</sub>X<sub>7</sub>X<sub>8</sub>, where the digits T X<sub>1</sub>X<sub>2</sub>X<sub>3</sub>X<sub>4</sub>X<sub>5</sub>X<sub>6</sub>X<sub>7</sub>X<sub>8</sub> take the values in B.II.2.2 for Inmarsat.

**B.II.2.2** The group call numbering schemes for the Inmarsat-A system will use eight decimal digits X<sub>1</sub> ... X<sub>8</sub> following the T digit, with T = 0, allocated as follows:

M <sub>2</sub> I <sub>3</sub> D <sub>4</sub> 0 <sub>5</sub> 0 <sub>6</sub> 0 <sub>7</sub> 0 <sub>8</sub> 0 <sub>9</sub>	National group call
M <sub>2</sub> I <sub>3</sub> D <sub>4</sub> F <sub>5</sub> F <sub>6</sub> F <sub>7</sub> F <sub>8</sub> F <sub>9</sub>	Fleet group call
0 <sub>2</sub> 0 <sub>3</sub> S <sub>4</sub> S <sub>5</sub> S <sub>6</sub> S <sub>7</sub> S <sub>8</sub> S <sub>9</sub>	Selected group call
0 <sub>2</sub> 0 <sub>3</sub> 0 <sub>4</sub> A <sub>5</sub> A <sub>6</sub> A <sub>7</sub> A <sub>8</sub> A <sub>9</sub>	Area group call

where M<sub>2</sub> ≠ 0, M<sub>2</sub> ≠ 1, F<sub>5</sub> ≠ 0 and S<sub>4</sub> ≠ 0.

For T = 1 or 8, the group call number is not valid.

**B.II.2.3** For Inmarsat-B and Inmarsat-Aeronautical, the format of the digits X<sub>1</sub> ... X<sub>8</sub> is for further study.

**B.II.2.4** The MIDs in national and fleet group numbers are those allocated in Table 1 of Appendix 43, Radio Regulations [1].

**B.II.2.5** In accordance with category 4 of the above-mentioned Appendix 43, the particular MID reflects only the country allocating the group call identity and, therefore, does not prevent group calls to fleets containing more than one ship nationality. Allocation of selected group numbers should be avoided when the same group could equally well be assigned a fleet group number.

**B.II.2.6** National group numbers and fleet group numbers should be allocated by countries. Selected group numbers and area group numbers as applicable to the Inmarsat system should be allocated by Inmarsat: allocation of such numbers may require cooperation with other organizations.

**B.II.2.7** A country having assigned a national group or fleet group number should notify the Director-General of Inmarsat if those numbers are going to be used within the Inmarsat system.

#### **Reference**

[1] Radio Regulations, Appendix 43, ITU, Geneva, 1982, revised in 1985, 1986 and 1988.



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